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Alicia Harper*, 176 Waterman Street, Apt. 4, Providence, RI 02906. *Factorization for Deligne-Mumford stacks.*

The weak factorization theorem allows one to relate a pair of birational smooth projective varieties by means of a sequence of blow-ups and blow-downs. Recent work of Abramovich and Temkin enables one to carry out weak factorization for birational representable morphisms from of Deligne-Mumford stacks. If one drops the hypothesis of representability, one is forced to deal with new and intrinsically stacky phenomena. Using Bergh's recent result on destackification, we give a generalization of the weak factorization theorem to non-representable morphisms of Deligne-Mumford stacks. As an application, we prove a form of simple homotopy invariance for the boundary complex of a pair (X,D) extending results of Danilov, Stepanov, and Payne. (Received February 09, 2018)